CLAIMS

1. A voltage-controlled oscillator, comprising:

an oscillating circuit and an active circuit, the oscillating circuit including an inductive circuit and a capacitive circuit sharing a first main terminal with a first main terminal voltage and a second main terminal with a second main terminal voltage to which the active circuit is connected to maintain an oscillatory transfer of electrical energy between the inductive circuit and the capacitive circuit at a frequency dependent on the capacitance of the capacitive circuit, the capacitance varying as a function of an adjustable potential difference formed by a difference between a biasing voltage and an adjustable control voltage, the capacitive circuit includes:

one or more circuit branches, where each circuit branch comprises a first half and a second half, the first half and the second half each comprises at least one capacitive element of variable capacitance connected in series between the first main terminal and the second main terminal and distributed over the first half and the second half so that each of the first half and the second half is mutually symmetrical with respect to a central terminal on which the adjustable control voltage is applied;

wherein the first half includes an outer most terminal with a first voltage proportional to the first main terminal voltage shifted by the biasing voltage and;

wherein the second half includes an outer most terminal with a second voltage proportional to the second main terminal voltage shifted by the biasing voltage.

2. The voltage control oscillator of claim 1, wherein the one or more circuit branches includes at least one additional circuit branch connected in parallel between the first main terminal and the second main terminal, so that the control voltage is applied to the central terminal of each circuit branch, and the outermost terminal of each circuit branch are biased by different biasing voltages.

3. The voltage-controlled oscillator according to claim 1, wherein the one or more circuit branches includes least three branches.

4. The voltage-controlled oscillator according to claim 1, wherein each biasing voltage in each of the one or more circuit branches is configured to be a voltage value which taken together as a group of biasing voltages forms a succession of biasing voltage values.

5. The voltage-controlled oscillator according to claim 1, wherein each of the one or more circuit branches includes a different number of capacitive elements.

6. The voltage-controlled oscillator according to claim 1, wherein at least one of the capacitive elements is a MOS (Metal-Oxide-Semiconductor) type varactors.

7. The voltage-controlled oscillator according to claim 5, wherein at least one of the capacitive elements is a MOS (Metal-Oxide-Semiconductor) type varactors.

8. The voltage-controlled oscillator according to claim 2, wherein each biasing voltage in each of the one or more circuit branches is applied via a resistor.

9. The voltage-controlled oscillator according to claim 7, wherein each biasing voltage in each of the one or more circuit branches is applied via a resistor.

10. The voltage-controlled oscillator according to claim 1, wherein at least one outer most terminal of at least one of the one or more circuit branches includes at least one decoupling capacitor.

11. The voltage-controlled oscillator according to claim 9, wherein at least one outer most terminal of at least one of the one or more circuit branches includes at least one decoupling capacitor.

12. A voltage-controlled oscillator, with an active circuit and an oscillating circuit including a capacitive circuit with a capacitance varying as a function of an adjustable potential difference formed by a difference between a biasing voltage and an adjustable control voltage, the capacitive circuit including:

at least one circuit branch, where each circuit branch comprises a first half and a second half, the first half and the second half each comprises at least one capacitive element of variable capacitance connected in series between a first main terminal with a first main terminal voltage and a second main terminal with a second main terminal voltage and distributed over the two halves so that each of the halves includes an outer most terminal with a voltage which is proportional to one of:

the first main terminal voltage shifted by a biasing voltage and

the second main terminal voltage shifted by a biasing voltage.

13. The voltage control oscillator of claim 12, wherein the circuit branch includes at least one additional circuit branch connected in parallel between the first main terminal and the second main terminal, so that the control voltage is applied to the central terminal of each circuit branch, and the outermost terminal of each circuit branch are biased by different biasing voltages.

14. The voltage-controlled oscillator according to claim 12, wherein at least one circuit branch includes least three branches.

15. The voltage-controlled oscillator according to claim 12, wherein each biasing voltage in each circuit branch is configured to be a voltage value which taken together as a group of biasing voltages forms a succession of biasing voltage values.

16. The voltage-controlled oscillator according to claim 12, wherein one circuit branch includes a different number of capacitive elements as compared with another circuit branch.

17. The voltage-controlled oscillator according to claim 12, wherein at least one of the capacitive elements is a MOS (Metal-Oxide-Semiconductor) type varactors.

18. The voltage-controlled oscillator according to claim 17, wherein at least one of the capacitive elements is a MOS (Metal-Oxide-Semiconductor) type varactors.

19. The voltage-controlled oscillator according to claim 12, wherein at least one of the biasing voltage in the circuit branch is applied via a resistor.

20. The voltage-controlled oscillator according to claim 18, wherein each biasing voltage in each circuit branch is applied via a resistor.

21. The voltage-controlled oscillator according to claim 12, wherein at least one outer most terminal of at least one circuit branch includes at least one decoupling capacitor.

22. The voltage-controlled oscillator according to claim18, wherein at least one outer most terminal of at least one circuit branch includes at least one decoupling capacitor.